Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

1.   (Currently Amended) A modem, comprising:

a carriergroup receiving means configured to receive signal-to-noise ratio (SNR) parameters relating to a plurality of carriers;

a carriergrouping means configured to group the plurality of carriers into a plurality of dynamically variable size carrier groups based on the SNR parameters, to determine a ~~first~~ carriergroup SNR parameter for each of the plurality of dynamically variable size carrier groups, the ~~first~~ carriergroup SNR parameter being a worst case SNR parameter from among the SNR parameters corresponding to the plurality of carriers within each of the plurality of dynamically variable size carrier groups, and to determine [[a]] ~~second~~ carriergroup bitloading and gain ~~parameter~~ parameters for each of the plurality of dynamically variable size carrier groups based upon the worst case SNR parameter ~~first carriergroup parameter~~ for each of the plurality of dynamically variable size carrier groups; and

a carriergroup transmitting means configured to transmit at least one message including the ~~plurality of~~ carriergroup bitloading and gain parameters for each of the plurality of dynamically variable size carrier groups. ~~and the at least one dynamically variable size carrier group.~~

2-6.   (Cancelled)

7.   (Previously Presented) The modem of claim 1, further comprising:

means for using the at least one message to set up a tone encoder in a far-end modem.

8.   (Currently Amended) A method for grouping a plurality of carriers in a DMT communication system, comprising:

grouping the plurality of carriers used for communication in the DMT communication system into a plurality of dynamically variable size carrier groups;

determining a plurality of carriergroup parameters for each of the plurality of dynamically variable sized carrier groups, the plurality of carriergroup parameters including a ~~first~~ carriergroup ~~parameter~~ signal-to-noise ratio (SNR) parameter being a worst case SNR parameter relating to the plurality of carriers within ~~each of~~ the [[the]] ~~plurality~~ dynamically variable size carrier ~~groups,~~ group and ~~a second~~ carriergroup ~~parameter~~ bitloading and gain parameters ~~being~~ based upon the ~~first~~ carriergroup ~~parameter~~ SNR parameter for ~~each of the plurality of~~ the dynamically variable size carrier ~~groups~~ group;

using the plurality of carriergroup parameters to dynamically set up a tone encoder; and

sending at least one message using the tone encoder, the at least one message including the plurality of carriergroup parameters.

9-13.   (Cancelled)

14.   (Previously Presented) The method of claim 8, further comprising:

setting up a tone encoder in a far end modem using the at least one message.

15.　(Previously Presented)　A method for grouping a plurality of carriers in a DMT communication system, the DMT communication system including a near end and a far end modem, comprising:

determining at least one dynamically variable sized carrier group from the plurality of carriers used for communication in the DMT communication system;

determining a worst case carriergroup signal-to-noise ratio (SNR) for the plurality of carriers within the at least one dynamically variable sized carrier group;

determining a carriergroup bitloading and a carriergroup gain for the plurality of carriers within the at least one dynamically variable sized carrier group based on the worst case carriergroup SNR;

using the carriergroup bitloading and the carriergroup gain to dynamically set up a tone encoder in the far end modem; and

using the carriergroup bitloading and the carriergroup gain to transmit messages from the far end modem to the near end modem using the tone encoder.

16 - 18.　　(Cancelled)

19.　(Previously Presented)　The method of claim 15, wherein the communication system is a VDSL system.

20.　(Currently Amended)　A modem for grouping a plurality of carriers in a DMT communication system coupled to a far-end modem via a transmission channel, comprising:

a carriergrouping means configured to ~~determine~~ group the plurality of carriers into a plurality of dynamically variable size carrier groups, to determine a ~~first~~ carriergroup signal-to-noise ratio (SNR) parameter for each of the plurality of dynamically variable size carrier groups, the ~~first~~ carriergroup SNR parameter being a worst case SNR parameter relating to the plurality of carriers within each of the plurality of dynamically variable size carrier groups, and to determine a ~~second~~ carriergroup bitloading and gain ~~parameter~~ parameters for each of the plurality of dynamically variable size carrier groups based upon the ~~first~~ carriergroup SNR parameter for each of the plurality of dynamically variable size carrier groups; and ~~groups, the carriergrouping means including:~~

~~a tone decoder coupled to the transmission channel configured to transmit the messages, the tone decoder being dynamically set up based upon the first and the second carriergroup parameters; and~~

a carriergroup transmitting means configured to transmit messages including each of the ~~first and the second~~ carriergroup bitloading and gain parameters to the far-end modem via the transmission channel to enable the far-end modem to send and receive messages using the plurality of dynamically variable size carrier groups.

21. - 25.   (Cancelled)

26.   (Previously Presented)   The modem of claim 20, wherein the messages are used to set up a tone encoder in the far-end modem coupled to the transmission channel.

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27. - 28.   (Cancelled)

29.   (Currently Amended) The method of claim [[1]] 8, further comprising:

setting up a tone encoder using the ~~first~~ carriergroup ~~parameter~~ bitloading and

gain parameters ~~and the second carriergroup parameter~~.

30. - 31.   (Cancelled)